04-ESQ-0234

U.S. Department of Energy
Office of River Protection
Mr. R. J. Schepens
Manager
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

CCN: 100485

OCT 12 2004

Dear Mr. Schepens:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF DECISION TO DEVIATE FROM THE AUTHORIZATION BASIS FOR THE HANFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT (24590-PTF-DTD-ENS-04-0006, REVISION 0)

The purpose of this letter is to provide notification to the U.S. Department of Energy (DOE) of a decision to deviate (DTD) from the authorization basis (AB) for the Hanford Tank Waste Treatment and Immobilization Plant. This DTD is being processed in accordance with the Preliminary Safety Analysis Report and project procedures. This letter satisfies the 72-hour written notification requirement.

DTD 24590-PTF-DTD-ENS-04-0006, Revision 0, describes a deviation from the *Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information,* 24590-WTP-PSAR-ESH-01-002-02, Revision 0g. The specific deviation from the AB describes changes to the Pretreatment (PT) Annex. The PT Annex is changing from one to two separate structures adjacent to the main building: (1) a single story Important to Safety (ITS) control building constructed of concrete, and (2) a two-story building of steel frame construction. The ITS portion, called the Control Building, maintains the original safety function as well as housing the ITS air compressors. Design of the non-ITS portion, continued to be called the Annex, will consider potential seismic event interactions.

This DTD is necessary to avoid schedule impacts associated with the issuance of design media.

Safety Evaluation 24590-WTP-SE-ENS-04-0189, Revision 0, is included as an attachment to the DTD. Project procedures require that an Authorization Basis Amendment Request reconciling deviations be sent to DOE for approval within 30 days of the DTD approval.

This DTD will be tracked in the Recommendation and Issues Tracking System to ensure attention to process and closure schedules.

Decision to Deviate from the Safety Envelope

DTD No: 24590-PTF-DTD-ENS-04-0006 Rev No: 0

The approvers of this form have determined that it is critical to project progress to temporarily deviate from the safety envelope as allowed in RL/REG-97-13. This temporary situation will be corrected no later than 90 days from the date this form is approved by the Area Project Manager. Environmental and Nuclear Safety (E&NS) is responsible for notifying DOE verbally within 24 hours, and in writing (including a copy of this form) within 3 working days, after the DTD is approved.

Safety Evaluation No. 24590-WTP-SE-ENS-04-0189, Rev 0

Identify the specific design changes that are not in compliance with the safety envelope (include the document numbers of affected design documents).

The Pretreatment Annex is changing from one to two separate structures adjacent to the main building: (1) a single-story ITS control building constructed of concrete and (2) a two-story building of steel frame construction. The ITS portion will now be called simply the Control Building. The non-ITS building will continue to be called the Annex. Additionally, ITS air compressors originally located on elevation 98' of the main building will be relocated to the Control Building. This DTD is being issued to support the immediate issuance of the design document mentioned below.

The redesigned structures will also be reclassified in accordance with DOE-STD-3009. The new Annex will be non-ITS and Seismic Category SC-IV based on an initial assessment of its potential interaction during a design basis earthquake with SC-I electrical equipment within the PTF. A confirmatory analysis is currently underway. The new ITS Control Building will be classified as Safety Class and Seismic Category SC-I (SC/SC-I) based on the need to support operation of safety class electrical equipment, safety class air compressors, and a habitability envelope for plant operator actions during off-normal events. This is consistent with the previous designation for the control building of SDC/SC-I for these functions.

Affected Design Documents		
Number	**Rev.**	**Title**
24590-PTF-P1-P01T-00020	0	Pretreatment Facility General Arrangement Control Building Plan at EL 0'-0"

Planned Design Documents*		
Number	**Rev.**	**Title**

* These documents have not been issued at the time the DTD is issued, but it is anticipated these will be issued during the 90-day window.

Describe the specific deviation from the safety envelope associated with implementing the change. Identify the AB document(s) and the affected section(s).

The Pretreatment Annex design changes that do not comply with the Safety Envelope (or have not been fully reviewed) and the PT PSAR sections that are affected:

The proposed design modifications impact the discussions presented in the following SED Sections but only to clarify the new facility arrangement, ITS compressor location and DOE-STD-3009 classification. Only minor descriptive changes to the DBE analyses are expected.

Section 3.4.2.1 Seismic Event
Section 3.4.2.3 Other Natural Phenomena Hazards

The above modification also impact the ITS SSC discussions presented in the following SED Sections to clarify the new facility arrangement and classification:

Decision to Deviate from the Safety Envelope

DTD No: 24590-PTF-DTD-ENS-04-0006 Rev No: 0

Section 4.3.1 Facility Structures
Section 4.3.10 Safety Design Class Electrical Power
Appendix 4A
See attached Safety Evaluation 24590-WTP-SE-ENS-04-0189, Rev C

Affected AB Documents			
Number	**Rev.**	**Title**	**Section**
24590-WTP-SED-ENS-03-002-02 representing 24590-WTP-PSAR-ESH-01-002-02	0g 1a	Safety Envelope Document; PT Facility Specific Information representing the PSAR, PTF	3.4.2.1 3.4.2.3 4.3.1 4.3.10

In addition to the Safety Evaluation referenced above, perform an evaluation to determine the following:

☒ The specific design changes do not cause or threaten imminent danger to the workers, the public, or the environment from radiological, nuclear, or chemical hazards.

Prepared by:

Brian K. Olson	P.L. Brian K Olson	10/4/04
Print/Type Name	*Signature*	*Date*

Decision to deviate from the safety envelope concurred with by:

Pete Labarta		10/04/04
Al Dausman	A. V. Dausman	10/4/04
ADS / DEM Staff Supervisor *(Print/Type Name)*	*Signature*	*Date*
Fred Beranek WP		10/4/04
E&NS Manager *(Print/Type Name)*	Signature	*Date*

NOTE: E&NS is responsible for the 24-hour verbal and 3-day written notifications to DOE-OSR as described above.

Decision to deviate from the safety envelope approved by:

Roger Smith		10/4/04
APEM / DEM *(Print/Type Name)*	*Signature*	*Date*
Robert Lawrence		10/5/04
Area Project Manager *(Print/Type Name)*	*Signature*	*Date*

Attachment: SE 24590-WTP-SE-ENS-04-0189, Rev. C

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0189	Rev. # 0
EDR No.:	24590-WTP-EDR-ENS-04-1458	Rev. # 0
Design Documents Evaluated:	24590-PTF-DTD-ENS-04-0006, Rev 0	
	24590-PTF-P1-P01T-00020	Rev. # 0
Consists of Parts: ☒ 1 ☐ 2		
Title: Control Building Redesign Decision to Deviate and General Arrangement Drawing		

Part 1 Safety Evaluation

Complete Part 1 for all design changes requiring this form. Refer to Appendix 4 of 24590-WTP-GPP-SREG-002 for guidance. Part 1 determines whether the design change requires an ABAR. For all questions, provide a "Basis" for the answer in sufficient detail that a knowledgeable individual can identify the technical issues considered and the basis for the determinations. If the answer to questions 2, 3, or 4 is "Yes", an ABAR is required. "Broad scope" and SRD changes also require an ABAR. A "Yes" answer to questions 5 or 6 means that the design change is unacceptable and must be withdrawn and re-engineered. For any change that does cause an SED change, prepare a redline markup of the applicable sections of that document. For BNI-approved changes, print the SE, sign, obtain concurrence signatures, including the affected FNS Supervisor or Regulatory Safety Manager, and return the form to the design document originator for forwarding to PDC with the evaluated design document. Provide a copy of an original of the completed SE and SED redline markup to the E&NS AB Coordinator.

Note: The SED represents the currently approved PSAR safety envelope sections, plus approved changes.

Description of change:

The Pretreatment Annex is changing from one to two separate structures adjacent to the main building: (1) a single-story ITS control building constructed of concrete and (2) a two-story building of steel frame construction. The ITS portion will now be called simply the Control Building. The non-ITS building will continue to be called the Annex. Additionally, ITS air compressors originally located on elevation 98' of the main building will be relocated to the ITS Control Building.

The redesigned structures will also be reclassified in accordance with DOE-STD-3009. The new Annex will be non-ITS and Seismic Category SC-IV based on an initial assessment of its potential interaction during a design basis earthquake with SC-I electrical equipment within the PTF. A confirmatory analysis is currently underway. The new ITS Control Building will be classified as Safety Class and Seismic Category SC-I based on the need to support operation of safety class electrical equipment, safety class air compressors, and a habitability envelope for plant operator actions during off-normal events. This is consistent with the previous designation for the control building of SDC/SC-I.

		N/A	YES	NO
1.	Does the change affect the safety envelope (SRD and applicable facility SED[s]), or is it a "broad scope" change? (Do not answer this question if already answered on corresponding safety screening/EDR)	☐	☒	☐
	Basis: The Pretreatment Facility process building and the Pretreatment Annex are described in the SED. The design descriptions, functional requirements, and safety classification will be evaluated and revised within the SED to match the planned design and nomenclature changes. The control building redesign and relocation of the ITS air compressors are considered "broad scope" changes.			
2.	Does the change create a new DBE?		☐	☒
	Basis: The control building redesign to create two separate structures does not create a new DBE. The design of the Control Building separate from the non-ITS structure maintains a SC-I, SC structure (now concrete) that performs all the original safety functions related to normal control room operations and post-DBE recovery (habitability) as well as protection of the ITS air compressors. There are no radiological or hazardous materials located in the Control Building.			
3.	Does the change result in more than a minimal (≥ 10 %) increase in the frequency or consequence of an analyzed DBE as described in the SED?		☐	☒

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0189	Rev. # 0
EDR No.:	24590-WTP-EDR-ENS-04-1458	Rev. # 0

		YES	NO
	Basis: The control building redesign to create two separate structures does not increase the frequency or consequence of an analyzed DBE as described in the SED. The new design of the concrete Control Building is more robust than the previous steel frame design, although the overall SC-I rating did not change. The structure continues to ensure that operators can perform post-DBE recovery and monitoring actions when they are needed during and after any design basis earthquake.		
4.	Does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class, Safety Class, or Safety Significant SSC meets its respective safety function?	☒	☐
	Basis: The safety function of the control building (to provide a safe haven for the main control room) previously met by a steel structure, is now met by a more robust concrete structure. The control building continues to provide the same functions as before, additionally it now houses the ITS air compressors. Since the control building is classified as safety class (SC) and seismic category I (SC-I), the safety function of the ITS air compressors also continues to be protected.		
5.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance with top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: The changes described here do not lead to any non-compliance with the applicable laws, regulations, or standards, as explained below. 10 CFR 820 – *Procedural Rules for DOE Nuclear Activities*: The proposed changes are not related to any compliance, violation, or enforcement issue, exemption from safety requirements, or reporting of supplier defective products or inaccurate or incomplete information. 10 CFR 830 – *Nuclear Safety Management*, requires establishment and maintenance of safety bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This included certain aspects of technical safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility ITS SSCs, and the quality assurance program (QAP). The proposed changes are consistent with the requirements of 10 CFR 830 for ITS SSCs. 10 CFR 835 – *Occupational Radiation Protection*, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The proposed changes do not affect the radiation protection program or challenge any requirements of 10 CFR 835. 24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document*, Volume II - The proposed classification changes conform to the SRD and classification guidelines in the WTP Procedure 24590-WTP-GPP-SANA-002, Rev 10.		
6.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The control building redesign to create two separate structures does not fail to provide adequate safety. The functional requirements for the control building to protect ITS electrical equipment (ITS UPS units and batteries), ITS air compressors, and to support maintaining a habitable environment for operators during all off-normal events continues to be provided in the new design. This was evaluated in an initial ISM meeting documented in CCN 092099. The specific changes to be authorized do not cause or threaten imminent danger to the workers, the public, or the environment from radiological, nuclear, or chemical hazards. The control room design will also address additional identified industrial and radiological safety hazards including high noise levels in the control building from the ITS air compressors, contaminated air backflow from the pretreatment facility into the compressor rooms, and air		

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-~~189~~ 0189 BK 10/6/04	Rev. # 0
EDR No.:	24590-WTP-EDR-ENS-04-1458	Rev. # 0

	YES	NO
receiver vessel bursts in the compressor rooms. Noise mitigation due to placement of the ITS air compressors within the control building will be provided by the combination of concrete separation walls, dampening isolation mounts for the compressors, and sound absorbing architectural materials. The compressed air distribution system includes check valves within the PTF to ensure that contaminated air cannot backflow into the compressor rooms. The air receiver vessel design includes safety relief valves to prevent vessel bursts. The Pretreatment SDC process building structure and the control building structure with its supporting ventilation system will be reclassified as Safety Class (SC) and seismic category I (SC-I) under DOE-STD-3009 criteria as implemented by SRD Appendix A.		

Affected Authorization Basis and/or SED Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report, PT Facility Specific Information (as represented by the SED, PTF)	24590-WTP-PSAR-ESH-01-002-02, Rev. 1 as represented by 24590-WTP-SED-ENS-03-002-02	0g	3.4.2.1 3.4.2.3 4.3.1 4.3.10

Safety envelope change required? ☒ Yes ☐ No

ABAR required? ☐ Yes ☒ No

Sign below and return form to design document originator. If an ABAR is required, sign Part 1, complete Part 2, and submit both to the E&NS AB Coordinator.

Safety Evaluation Preparer:	Brian K. Olson *Print/Type Name*	Brian K Olson *Signature*	10/4/04 *Date*
Design Document Originator/Supervisor	Pete Labarta	Pete Labarta	10/04/04
	Al Dausman *Print/Type Name*	A.V. Dausman *Signature*	10/4/04 *Date*

Signature of Originator/Supervisor concurs that description of change is accurate and complete

FNS Supervisor or Regulatory Safety Manager:	Pete Lowry *Print/Type Name*	Pete Lowry *Signature*	10/4/04 *Date*

Attachments: (page changes for SED changes) P.L. 10/4/04

~~Attachment 1 - Proposed changes to the Preliminary Safety Analysis Report, PTF, as represented by the SED, PTF~~

None